

### **REMARKS**

Reconsideration of the above-mentioned application is hereby requested in view of the above amendments and remarks which follow. Applicants appreciate the Examiner's thorough consideration of the application.

Applicants do not understand the Examiner's objection regarding the need for filing drawings. All of the drawings were filed as part of the national entry under 35 USC §371. Moreover, this application has already been published as US 2006/0174769 and the drawings form part of the published US application.

### **Claims 11 and 12**

The examiner rejected claims 11 and 12 under 35 U.S.C. §102(b) as being anticipated by US Patent 5,472,719 "Favre". The applicant respectfully disagrees with this rejection.

Favre describes two separate embodiments of a capsule carrier "9". The first is shown in figures 3 to 5, col. 5 lines 40-58, wherein the lower wall of the liquid product collector "capsule carrier" is a filtering wall "10" with a plurality of sharp perforating tips "13" and a plurality of outlet orifices "12". The second, alternative embodiment, is described in col. 6 line 64 to col. 7 line 31, and with reference to figures 6, 7, 8 and 8a. The second embodiment is designed for extracting from cartridges containing a soluble or liquid substance, for which a filter for retaining solid substances contained in the capsule is not necessary. In this second embodiment the capsule carrier has, instead of a perforating filtering wall "10", a perforating wall having a single centrally located sharp tip "22", or projection with an upper cutting edge "27", and a single central outflow opening "23, 24". In other words, Favre describes a capsule carrier having a perforating lower wall either in the form of a filter wall "10" with a plurality of perforating projections and outflow orifices, or a single central perforating sharp tip/projection with a single central outflow orifice.

The capsule carrier "9" of Favre does not have, in addition to a filtering wall, with a plurality of perforating projections and outflow orifices, a separate bottom wall, whereby there is a lower cavity portion between the filtering and bottom wall, and which bottom wall

comprises outflow channels surrounded by lips which protrude upwards with respect to the lowest point of the lower cavity portion, as required by claim 11.

With respect to claim 12, it is further highlighted that, neither does Favre describe in any way a capsule holder having an intermediate filtering wall and a bottom wall comprising an outflow channel surrounded by lips which protrude upwards with respect to a lowest point of the cavity portion, nor does Favre describe any such upwardly protruding lips which have “openings in the form of slots or of holes enabling liquid to flow out from the capsule carrier at the lowest point” as required by claim 12.

Accordingly, Applicants believe that claims 11 and 12 are not anticipated by Favre.

Claims 13 to 17 are cancelled without prejudice.

**Claims 1, 2, 4, 5 and 7**

The examiner has rejected claims 1, 2, 4, 5 and 7 under 35 U.S.C. §103(a) as being unpatentable over US 6,182,554 “Beaulieu” in view of US 5,762,987 “Fond”. The applicant cannot agree with the examiner’s rejection and it is respectfully submitted that claims 1, 2, 4, 5 and 7 are non-obvious over the cited documents.

It is firstly highlighted that in the device described in Beaulieu the top of the cartridge “50” is pierced by the downwardly projecting apertured probe “126” to establish a flow inlet for providing liquid to the interior of the cartridge (see fig. 6B and 2A, col. 4 lines 43 to 47). Contrary to the examiner’s assertion, in Beaulieu the water for extraction of the coffee is injected directly into the capsule through the apertured probe and **not onto the flexible membrane** as required by the present independent claims 1 and 4. The use of an apertured probe, such as in Beaulieu, which injects hot water directly into the interior of the capsule would make it impossible to achieve the pressure auto-regulation and automatic adjustment of the compression of the product contained in the capsule provided by the method of the present invention.

Further, Fond specifically divulges a device for the preparation of beverages contained in sachets made entirely from flexible sheets, and describes a perforating head

having a concave form which is configured to conform to the exterior form of a flexible sachet. It is to be noted that a sachet made entirely from flexible sheets has a technical effect very different to that of a capsule which has a rigid shell and a flexible membrane hermetically closing the open face of the rigid shell.

In Fond, the sachet holder top and bottom members must be shaped to ensure the form of the sachet during extraction, which is not the case for a capsule extraction system. According to Fond, the two members of the sachet holder not only have function of the sachet edge for fluid tight sealing, but also the specific configuration of the chamber formed by the two members is taught to have the function of shaping the sachet, and of confining the substance within the sachet within the cavities. According to Fond clamping of the upper and lower members of the sachet holder shapes the outer form of the sachet, such that this outer form of the completely flexible sachet is fully defined by adaptation to the internal configuration of the sachet holder to the chamber, prior to extraction during positioning in the sachet holder members, even if a capsule has undergone a deformation during prior handling. Fond further teaches that the upper and lower members of the sachet chamber, when clamped together, advantageously reduce the available inner volume of the sachet in order to limit those location not filled by the substance to be extracted to a minimum, in order to facilitate extraction (see e.g. col. 2 lines, 10-21, col. 2.60 – col. 315, abstract).

The perforating head of the Fond device is not compatible with the extraction device taught in Beaulieu, not least since the sachet holder of Fond, having a specific configuration designed to fulfil specific functions of holding, shaping and retaining the shape of a flexible sachet, is not appropriate for, and would not function in, the device of Beaulieu for the extraction from the rigid capsules having only a flexible upper membrane closing the rigid capsule shell.

Moreover Beaulieu is specifically directed to a device which enables the automatic ejection of a spent beverage capsule and teaches the specific combination of a flat perforating head having a single apertured probe for piercing the capsule top flexible membrane and a series of projections “178” located on the under side of the injection head to ensure that the injection head separates from the top of the cartridge, for rejection of the cartridge. A foam

gasket “155” around the single perforating aperture “126” is also taught to assist in separating the injection head from the top of the cartridge. The injection head taught by Fond with its plurality of perforating members would not allow achieving the object taught by Beaulieu of facilitating automatic dislodging of the capsule from the capsule carrier, since the plurality of perforating points would tend to have the opposite effect i.e. of adhering to the cartridge flexible top membrane at the numerous injection points.

Further, Fond teaches that in operation, the flexible upper surface of the sachet, formed entirely of flexible sheet material, is forced against the upper surface of the sachet holder chamber, under the effect of water pressure and the swelling of the coffee (see e.g. col. 3 lines 16-20). This is contrary to the present invention as claimed, wherein on injection of water onto the flexible membrane of the capsule, the flexible membrane is deformed in the direction of the product contained in the capsule and the water penetrates into the capsule via the holes.

It may be highlighted to the examiner that the idea of the present invention of using a flexible upper membrane of the capsule to resist partially the hydraulic pressure, to distribute the water injection inflow and to automatically adjust the compression of the product inside the capsule is not disclosed in the prior art.

In the method of the present invention, the auto-regulation is performed by a combination of the elastic and/or permanent deformation properties of the flexible membrane, in combination with the shape of the injector perforating spikes, which make it possible to form holes distributed over the flexible membrane which have a shape making the flexible membrane resistant to tearing, further taking into account the degree of compactness and filing of the substance within the capsule. For example, if the capsule is filled with tea leaves, these would provide little or no resistance as a membrane is pushed down by the injection head and perforating points under the pressure of injected water, thus leading to the formation of small perforated holes, whereas if the capsule is filled with a denser product, such a coffee powder, the perforating head and perforating points will push harder against the flexible membrane, thus creating larger perforating holes.

In the method of the present invention, when water is injected under pressure from the injection head onto the flexible membrane, this flexible membrane deforms under the pressure of the injected water and moves away from the injection head, exerting a pressure on the product contained in the capsule. The water under pressure flows through the flexible membrane via the plurality of perforated holes distributed over the surface of the flexible membrane and wets the product inside the capsule. The plurality of distributed holes of controlled size in the upper membrane confers an important advantage of ensuring an excellent distribution of water injection inflow over the substance inside the capsule. Further, the less product there is in the capsule, the greater will be the deformation of the membrane and the lower will be the flow of water, which also restricts the formation of preferential flow channels.

The pressure exerted by the membrane also make it possible to ensure that the counter-resistance to the flow of the liquid under pressure through the product remains high ensuring the entire extraction cycle, which optimizes the extraction, and makes it possible to achieve a richer flavour and more thorough extraction of the whole of the product contained in the capsule, even for products which are extracted completely, e.g. soluble products such as powdered milk or chocolate. Moreover, the high pressure applied during the entire extraction cycle makes it possible to obtain a very good froth (see for example page 3 lines 6-26 and page 7 lines 1-28 of the English translation of the corresponding PCT application PCT/IB20040027).

### **Claims 3 and 6**

The examiner's rejection of claims 3 and 6 under 35 U.S.C. 103(a) as being unpatentable over Beaulieu in view of Fond, and further in view of US 7,024,985 Park is respectfully traversed.

Park is directed to a device for the extraction of coffee from loose coffee grinds. The device of Park has an entirely different functioning to that of a capsule extraction device. In Park the coffee is made from loose coffee grinds and is as such brewed. The device of Park

does not allow for the build up of high extraction pressures, contrary to the capsule extraction device and method of the present invention.

Park does not disclose in any way a perforating injection head, but on the contrary describes a piston head “130” which has a water flow path “134” through it, to guide water into a cylinder “151” in which are located the coffee grinds. The piston head, has a filter “137”, with holes so that the hot water may pass therethrough into the coffee grinds, to prevent the coffee becoming introduced into the piston head (e.g. col. 6 line 44 to 67). The piston unit “130” simply has the function of pressing coffee grinds disposed on the top surface of a lower piston “140” while discharging hot water to be mixed with the coffee, in order that the resulting liquid coffee be pushed out of the brewed coffee grinds/water mixture and discharged.

The piston head “130” of Park is not a perforating head for a capsule device, and would not be compatible for use with the injection assembly of Beaulieu, or that of Fond. It is considered that the examiner’s argument is based on an unallowable *ex post* analysis of the invention.

The presently claimed configuration of a convex perforating surface of the injection head is not disclosed in the cited documents and advantageously enables to control well the pressure of the perforating points against the flexible membrane of the capsule, and thereby to control the perforation of the membrane in order to control the auto-regulation.

### **Claims 8 and 9**

The examiner rejects claims 8 and 9 under 35 U.S.C. 103(a) as obvious over Fond in view of Park. This rejection is respectfully traversed on this basis of our arguments as outlined above in respect of claims 3 and 6.

It is to be stressed that Fond is not suitable for the preparation of beverages from a capsule according to the present invention. Further, contrary to the device claimed in claims 8 and 9, Fond discloses an injection head having a perforating surface which is concave.

Further, Park discloses a piston head for providing water to coffee grinds and does not in any way describe a perforating surface having a shape which is convex. As mentioned with respect to claims 3 and 6, a convex perforating surface, and perforating projecting having a smooth tapered shape without sharp edges and average cone angle less than 60° is certainly not disclosed in any of the prior art, and this configuration is particularly advantageous for properly perforating the membrane of the capsule and controlling the size of the perforations.

**Claim 10**

Claim 10 was rejected by the examiner under 35 U.S.C. 103(a) as being unpatentable over Fond in view of Park, and further in view of Favre. This rejection is respectfully traversed on the basis of our comments above in respect of claim 8 and 9, and further in view of the fact that Favre does not disclose a capsule carrier having an intermediate wall in the form of a filtering wall having a plurality of perforating spikes and outflow orifices, together with a separate bottom wall, which bottom wall comprises an outflow channel surrounded by lips which protrude upwards with respect to a lowest point of the cavity portion, as set out above in respect of claims 11 and 12.

Applicants have added new dependent claims 18-27.

For all of the foregoing amendments and remarks, Applicants believe that claims 1-12 and 18-27 are in condition for allowance and respectfully request early passage thereof.

If necessary, Applicants request that this response be considered a request for an extension of time appropriate for the response to be timely filed. Applicants request that any required fees needed beyond those submitted with this response be charged to the account of Baker & Daniels, Deposit Account No. 02-0390 (979078.2).

Respectfully submitted,

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